

TONE AND THE NP IN EMAI¹

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INTRODUCTION

The NP in Emai is made up of one or more premodifiers, a noun or numeral head and a sequence of one or more postmodifiers. The postmodifiers are the possessive and relator phrases, demonstratives, nouns, quantifiers, numerals and possessive pronouns. Below are a few examples illustrating the NP.³

- 1a. óli úvbi éwe isi óha ogie óáin
DET DIM goat POSS wife king that
'king's wife's small goat'
- 1b. ívbexan evá éli ebe évbeé
children two REL bad another
'two other bad children'
- 1c. óli okpa isi ee óáin
DEF one POSS your that
'that one of yours'
- 1d. igbé óvbeé ódan
ten another different
'another different ten'

We shall delay making any statements about the categorial relations between these constituents of the NP until later on. The possessive phrase and the relator phrase are marked by the morphemes *isi/esi* and *óli/eli* respectively.⁴ Historically, N+N combinations are derived as a result of the deletion of the possessive markers in a noun-poss-noun relationship.⁵

There are two basic tones in Emai. These are the high and low tones. There are also variants of these tones such as the downstep, rising, falling, raised low and downglide.

TONAL CHANGES IN THE NP

Two kinds of tonal changes affect nominals in the NP. The first kind involves the change of a low or sequence of low tones to high in nonfinal nominals 1)

if such a low tone or its sequence is not interposed by a high tone 2) if the nominal bearing the tone does not immediately precede a numeral. Examples in 2a-e show the change affecting nominals of various tonal patterns; f-h show instances where the change is blocked; h-i show that low tones preceding a high tone are unaffected.

- 2a. *ubele isi ogie* ----> [*úbélé!-s-odze*]⁶
gourd POSS king 'the king's gourd'
- 2b. *ivbexan éso* ----> [*ivbéxán éso*]
children certain 'certain children'
- 2c. *ígúé òli ode* ----> [*ígúé-l-ode*]
camp REL yesterday 'the camp of yesterday'
- 2d. *ogbele òli ofuan ódan* ---->
strap REL white different
[*ógbélé-l-ófúán-ódan*]
'a different white strap'
- 2e. *ubele évbii* ----> [*úbél-évbii*]
gourd oil 'gourd of oil'
- 2f. *akaka evá* ----> [*akaka evá*]
grasshopper two 'two grasshoppers'
- 2g. *igbalaka ógban évbeé* ---->
ladder thirty another
[*igbalaka ógbán évbeé*]
'another thirty ladders'
- 2h. *ikeké isi oisa* --> [*ikeké-!s-oisa*]
bicycle POSS Oisa 'Oisa's bicycle'
- 2i. *itása óso* ----> [*itásá óso*]
plate certain 'a certain plate'

The second change involves nonfinal complements of the possessive phrase. A LHN pattern is realized on it. Also no change occurs 1) if such a nominal has a final high tone, or 2) if it immediately precedes a numeral. Examples in 3a-e show the change affecting nominals of different tonal structures; f-h show blocking environments.

- 3a. iwe isi ófe ólóin ----> [íwé-s-ófé-nóin]⁷
house POSS rat other 'the other rat's house'
- 3b. awé isi ekpen óli obe ----> [áwé-!s-ekpén-l-obe]
legs POSS leopard REL bad 'the bad leopard's legs'
- 3c. ókoó isi úkpódé isi oke ---->
hill POSS road POSS Oke
[ókoó-!s-ukpódé-!s-oke]
'the hill on the road to Oke'
- 3d. ekpa isi olan ólóni ---->
bag POSS this one other
[ékpá-!s-onán-nóin]
'this one's other bag'
- 3e. awé isi akaka óvbeé ---->
legs POSS grasshopper another
[áwé-!s-akáká-óvbeé]
'another grasshopper's legs'
- 3f. óran isi igbalaka ihíón ---->
wood POSS ladder seven
[órán-!s-igbalaka-ihíón]
'seven pieces of wood for ladder'
- 3g. akpótí isi ogbele úe ódan ---->
box POSS strap twenty different
[akpótí-!s-ogbele-úé-ódan]
'another twenty boxes of strap'
- 3h. awé isi adogán olan ---->
legs POSS tripod this
[áwé-!s-adogán-nan]
'this tripod's legs'

Against our prediction a premodifier may have its initial high tone changed to low when it occurs before a final high tone initial noun in a possessive complement. Consequently, we get a LHx pattern on the premodifier and its head. Before a final low tone initial noun however no change occurs. Normally, a premodifier and its head are treated as a unit when they occur nonfinally as complements of the possessive phrase.

- 4a. *óbo isi úvbi éwe* ----> [óbo-!s-uvj-éwe]
hand ASS DIM goat 'the small goat's hand'
- 4b. *ófe isi óli óvbexan* ----> [ófé-!s-ol-óvbexan]
rat POSS DET child 'the child's rat'
- 4c. *awe isi úvbi ekpen* ----> [áwé-!s-úvbj-ekpen]
legs POSS DIM leopard 'the small leopard's legs'
- 4d. *ábo isi óli otan* ----> [ábó-!s-ol-otan]
paws POSS DET squirrel 'the squirrel's paws'
- 4e. *eo isi úvbi otan olan* ---->
face POSS DIM squirrel this
[éó-!s-uvbj-ótán-nan]
'this squirrel's face'
- 4f. *ékéni isi óli akaka óáin* ---->
belly POSS DET grasshopper that
[ékéín-!s-ol-ákáká-áin]
'that grasshopper's abdomen'

ANALYSIS⁸

Historically, three sets of questions have occupied phonologists in their bid to understand the interface between grammar and phonology. These questions roughly put are the if, how, and how much of grammar-phonology interface. With regard to these questions the following facts are now well known: a) that the kind of clear separation of levels advocated by some early phonologists is not empirically justifiable.; b) that the representation of grammatical involvement in phonology in terms of junctural phonemes or boundary symbols is theoretically deficient; c) that phonology may have access only to surface syntactic structure and not to any earlier level.

Beyond the facts stated above, there is an ongoing controversy about the form of surface structure which phonology may have access to. In other words, what kind of syntactic information is phonologically relevant? There are basically two approaches, namely the Direct Syntax Approach DSA and the Indirect Syntax Approach ISA (Hyman et al 1987). DSA allows phonological rules to refer to surface structure bracketting. In its strongest form it permits access to categorial

information. In its weakest form only a statement of linear precedence is required whether in the language in question the first word must c-command the second or vice versa (Kaisse 1985). ISA proposes that surface syntactic structure is reduced to phonological domains on the basis of which the conditions of postlexical rules can be stated (Hyman et al. 1987:88).

Our approach here is the DSA. Without being prejudicial we believe that we cannot begin to draw up prosodic domains for a language with such a limited scope as we have in this study. Moreover, there is really no antagonism between both approaches-ISA simply goes a step further than DSA. Within the DSA however we shall explore the possibility of stating the conditions on the rules strictly in terms of precedence relations.

In order to proceed with our analysis we shall refresh your memory with the facts of the change:

- a) two types of changes occur, both involve nonfinal nominals. Whereas the first turns a low tone or its sequence to high, the second realizes a LHN pattern.
- b) Whereas the latter change is realized on the complements of a possessive phrase the former occurs elsewhere in the NP.
- c) Both changes are blocked if the relevant nominals immediately precede a numeral or if such a nominal has a final high tone.
- d) low tone preceding a lexical high tone is unaffected by the first change.

We propose that these changes occur as a result of the application of two ordered rules. The first is a high tone insertion and spreading rule, the second is a low tone insertion rule.

HIGH TONE INSERTION

This rule affects all nonfinal nominals of the NP in Emai, this also includes the complements of the possessive phrase. There are two possible ways of viewing this rule. First we may insert the tone after the penultimate nominal and spreading it backwards all the way as illustrated in 5b below.

- [illegible]

Or we may allow the insertion of the high tone to apply recursively after every nonfinal nominal, as in 6a, with the domain of spreading restricted to the immediately preceding nominal.

- 6a.
- | | | | | | |
|-------------|--|-----|-------|------|-----|
| (H) | | H | L | (H) | HHL |
| \ | | | | / \ | |
| ákáka | | oli | ofuan | gain | |
| grasshopper | | REL | white | that | |
- 6b. [ákáká-1-ófúán-áin] OUTPUT
 'that white grasshopper'

Evidence from Email suggests that the second alternative is the correct one. We observed earlier that the change is blocked by high tones and numerals. We expect that, if the process applies enblock, all nominals, or part of the nominals preceding the blocking environments, would be unaffected. But this is not so. The blocking by a high tone does not extend beyond the nominal bearing such a tone, while numerals only block nominals immediately preceding them.

- 7a. ekpa isi ódodó óli ode áin ---->
bag POSS flower REL yesterday that
 [ékpa-!s-ódodó-l-ódé-áin]
 'the bag of flowers of yesterday'
- 7b. awe isi akaka ógbán ---->
 legs POSS grasshopper thirty
 [áwé-!s-akaka-ógbán]
 'the legs of thirty grasshoppers'

Having made the observations above, it now behoves us to properly state the conditions affecting this rule. We have to explain why numerals exert a blocking effect on immediately preceding nominals, even though they are themselves subject to this change. We also need at least to give an insight to why lexical high tones block the change.

Our contention is that this change signals the notion headship. To properly express this position we shall employ the notion of c-command, which essentially states that a node A c-commands a node B if the first branching node dominating A also dominates B (Kaisse 1985). This also includes all units subsumed under B but no more. This later addition imposes a domain on c-command.

The NP in Emai is a rightbranching tree, this does not undermine the existence of a highly bound premodifier constituent. In a sequence of nominals a nominal is head over and consequently c-commands every nominal to its right. In other words there is a recursive rightward head-modifier relationship. It is this relationship that this change signals. Final nouns do not undergo the change because by their position in the scheme they never occur as head.

The blocking effect of numerals can be explained in two ways. The easy way out is to state that the change is sensitive to categorial information. In other words the category label Numeral exerts a blocking effect. The problem with this analysis is that the change is not blocked in numerals themselves but in a preceding nominal. This rather suggests some kind of relational factor. This brings us to the second and correct analysis. In the c-command hierarchy in the NP in Emai, only the numeral is not under the c-command of an immediately preceding nominal. But it c-commands the following nominals hence it undergoes that change. In fact any NP in Emai with a numeral has the structure represented in Figure 1 below:

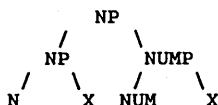


FIGURE 1. NP structure in Emai.

The tree above shows clearly that there is no c-command relationship between a numeral and a preceding nominal. The numeral like a noun functioning as head of a phrase can take all kinds of non-verbal modifiers including a noun.

Low Tone Insertion

Subsequent to the application of high tone insertion rule, a low tone is inserted on the first syllable of nonfinal nominal complements of possessive phrases. The application of both rules results in the LHN tonal pattern observed in these nominals. Low tone insertion is blocked in nominals with final high tones. This is because of the blocking effect of high tones which prevent high tone insertion and spreading; hence also blocking low insertion which is ordered after it. This explains why LHN pattern is not realized on possessive complements with final high tones.

Like the high tone insertion, this rule also applies recursively to every nonfinal complement of possessive phrases. The same arguments supporting this position in the earlier rule are also applicable here. Let us now illustrate with example 8 below:

- 8a. L L H L L L L H L H L L L L
 | | | | | | | | | | | | | |
 awé isi akaka isi ovbexan olan
 leg POSS grasshopper POSS child this
 'this child's grasshopper's legs'

- 8b. (H) H L (H) H L H (H) L L H-INSERTION
 | | | | | | | | | | | | | | AND SPREADING
 awé isi akaka isi ovbexan olan

- 8c. (H) H L (L) (H) H L (L) (H) L L LOW TONE
 | | | | | | | | | | | | | | INSERTION
 awé isi akaka isi ovbexan olan

- 8d. [áwé-!s-akáká-!s-óvbéxán-nan] OUTPUT BY
 VOWEL ELISION

Low tone insertion is an index of another kind of relationship. It applies under conditions of structural and semantic ambiguity. The possessive phrase through the possessive markers *isi/esi* create structural ambiguity in the NP. Thus the sentences below have two structures each: a rightward and a leftward branching structure. Each structure has its unique semantic interpretation.

- 9a. *ekpa isi ikeké óli ofuan*
 bag POSS bicycle REL white
 'the bag for the white bicycle'
- 9b. *ekpa isi ikeké óli ofuan*
 bag POSS bicycle REL white
 'the white bicycle-bag'
- 10a. *awé isi akaka óáin*
 legs POSS grasshopper that
 'that grasshopper's legs'
- 10b. *awé isi akaka óáin*
 legs POSS grasshopper that
 'those grasshopper-legs'

Any NP with the possessive phrase is susceptible to this ambiguity. In terms of c-command the possessive phrase brings nothing new to the NP in Emai. Thus there is no question of explaining the low tone insertion in terms of precedence relations as we did for high tone insertion. In fact, aside from this ambiguity, the possessive and relator phrases are undifferentiated. If we fuse the two structures in 7b we can understand the situation clearly.

[[[awé [isi akaka] óáin]]]

FIGURE 2. Fused NP structures.

It is clear that the complement of the possessive phrase occurs in overlapping domains. It is this condition that low tone insertion signals. Even though such an overlap does not occur when we have a final possessive complement, a low tone is inserted on the initial syllable of the premodifier of a high-tone-initial noun. (See the examples in 4 above.)

Our explanation of this is that low tone insertion applies in error in this circumstance. As a result of the ordering of low tone insertion after high insertion, the high tone of the initial syllable of the following nominal is erroneously analyzed as deriving from the application of high insertion and spread; thus motivating low insertion. This analysis finds strength in the fact that nominals beginning with a low tone do not condition the change.

In conclusion we would like to mention that the blocking of a spreading grammatical high tone by a lexical high tone runs through the entire Emai postlexical tonology. This together with the fact that lexical tonal contrasts is now highly diminished calls for a reanalysis of Emai to determine its true status as a tone language.

ENDNOTES

1. Emai is a language spoken by about 30,000 people, mostly indigenes of the Emai clan of Owan Local Government Area of Nigeria. It belongs to the North Central Branch of the Edoid group of languages. Edoid languages belong to the Kwa language family.

2. I extend my deep appreciation to Ron Schaefer for discussing my data with me. All shortcomings are however mine.

3. Conventions and abbreviations used in this paper include the following: vb=voiced labiodental approximant; gh=voiced velar fricative; dz=voiced palato-alveolar affricate; e=half open front unrounded vowel; o=half open back rounded vowel; n after a vowel or vowel sequence indicates nasalization; DEF=definite article; DIM=diminutive; NP=noun phrase; NUM=numeral; NUMP=numeral phrase; POSS=possessive marker; REL=relator.

4. The initial vowels of these markers are concord prefixes. The relators are actually the singular and plural forms of the definite article. These forms also function as the relative introducers, focus markers, and indirect object marker. *isi* and *esi* are referred to as Associative markers in Egbohkhare (1990). The nomenclature used in the present work is strictly for convenience.

5. [N + N] and [N + Possessive Pronoun] sequences are derived historically from [N-Poss-N/Possessive Pronoun] sequences. The absence of the markers has some implications, as the following examples illustrate:

/ekpa ísi óka/	/ekpa óka/
bag POSS maize	bag maize
'bag for maize'	'a bag of maize'

6. Vowel elision occurs in constructions when vowels come in contact across morpheme boundaries. Morpho-syntactic factors determine which of the vowels in contact should elide. The examples in square brackets show forms after elision.

7. Structural ambiguity results when we have the structure [N-Poss-Nom X] in Emai. Each of the examples presented is structurally and semantically ambiguous. We have found it convenient not to reflect this in the glosses. Below is an illustration of their ambiguity.

[awé [ísi ófe óáin]]
 legs POSS rat that
 'that rat's legs'

[[awé ísi ófe] éáin]
 legs POSS rat that
 'those legs of the rat'

8. A different analysis of these changes is contained in Egbokhare 1990. The analysis traces the first type to the spreading of high tones of concord prefixes of the NP markers *esi/isi* and *oli/eli* and qualifiers. This analysis faces some difficulty in trying to postulate a high tone prefix across the board for all qualifiers. To put it succinctly, the analysis is morphologically based whereas the present one is syntax based.

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